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27296	7590	09/23/2005	EXAMINER	
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CHAMPAIGN, IL 61825			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 09/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,710

Applicant(s)

HAZANCHUK, ASHER

Examiner

Dung X Nguyen

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33 - 38 is/are allowed.
- 6) ☒ Claim(s) 1 - 16, and 19 - 23, 33, 38, and 46 is/are rejected.
- 7) ☒ Claim(s) 17, 18, 24 - 32, 34 - 37, and 39 - 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date JUNE 28, 2001 1/21/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. **Claim 7 is objected** to because of the following informalities: “coefficient” as recited in line 1 should be changed to “coefficients”. Appropriate correction is required.
2. **Regarding claim 7**, “L” as recited in line 1 and “n” as recited in line 2 must be defined. Appropriate correction is required.
3. **Claim 18 is objected** to because of the following informalities: “first sample value the consecutive sample value.”” as recited in lines 3 & 4 should be changed to “first sample value of the consecutive sample value.”. Appropriate correction is required.
4. **Regarding claim 26 is objected**, “l” as recited in lines 2 and 5, “n” as recited in lines 3 and 10, “d” as recited in line 4 must be defined. Appropriate correction is required.
5. **Claim 27 is objected** to because of the following informalities: “d” as recited in lines 2 and 5, “n” as recited in line 3 must be defined, and “andprocessing...” as recited in line 3 should be changed to “and processing...”. Appropriate correction is required.
6. **Claim 35 is objected** to because of the following informalities: the limitation of “of the plurality” first appearance, as recited in line 2 should be deleted. Appropriate correction is required.
7. **Regarding claim 39 is objected**, “n code sequence” as recited in lines 2 and 3, “n+d-1 and d” as recited in lines 5, 9, and 10 must be defined.
8. **Claim 46 is objected** to because of the following informalities: the limitation of “storing coefficients” as recited in line 3 should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraphs of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claims 24 and 25, respectively**, as following the limitations analyzed in claim 14, the limitation of “L/n” as recited in line 1. There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 1 – 6, 9 – 15, 19, 23, 33, 36, and 46 are rejected** under 35 U.S.C. 102(b) as being anticipated by Lomp et al. (US patent # 5,799,010).

Regarding claim 1, Lomp et al. discloses (figure 4):

- Determining first correlation values (402) for a first plurality of sample sequences during a first clock cycle (column 29, lines 22 – 47);
- Determining second correlation values (403) for a first plurality of sample sequences during a second clock cycle (column 29, lines 22 – 47);
- Block (410) for determining correlation outputs for the first plurality of sample sequences from the first and second correlation values.

Regarding claim 2, as followed by the limitations analyzed in claim 1, Lomp et al. further discloses that wherein determining the first correlation values comprising processing

Art Unit: 2631

coefficients in a first code sequence group parallel with inherently corresponding sample sequence group from the first plurality of sample sequences (column 27, lines 1 – 34).

Regarding claim 3, as followed by the limitations analyzed in claim 1, the limitation are analyzed in the same manner set forth as claim 2.

Regarding claim 4, as followed by the limitations analyzed in claim 1, Lomp et al. further discloses (figure 4) that wherein block (410) for determining correlation outputs for the first plurality of sample sequences comprising taking a sum of the first (408) and second (409) intermediate correlation values for each of the first plurality of samples (column 29, lines 22 – 47).

Regarding claim 5, as followed by the limitations analyzed in claim 1, Lomp et al. further discloses (figure 4):

- Determining first correlation values for a second plurality of sample sequences during a third clock (column 29, lines 22 – 47, column 27, lines 1 – 34, and column 25, lines 48 – 56);
- Determining second correlation values for the second plurality of sample sequences during a fourth clock (column 29, lines 22 – 47, column 27, lines 1 – 34, and column 25, lines 48 – 56);
- Block (410) for determining correlation outputs for the first plurality of sample sequences from the first and second correlation values.

Regarding claim 6, Lomp et al. discloses (figure 4):

- Processing a first group of coefficients (402, column 29, lines 27 – 33 and column 27, lines 17 – 19) in the code sequence with a first group of sample values in a received sample to determine a first intermediate correlation value during a first clock cycle (column 29, lines 22 – 47);
- Processing a second group of coefficients (403, column 29, lines 37 – 42 and column 27, lines 17 – 19) in the code sequence with a second group of sample values in a

Art Unit: 2631

received sample to determine a second intermediate correlation value during a second clock cycle (column 29, lines 22 – 47);

- Determining a correlation output from the first and second intermediate correlation values (410).

Regarding claim 9, as following the limitations analyzed in claim 6, Lomp et al. further discloses that wherein the first and second groups comprising code sequences are contiguous (column 29, lines 22 – 47).

Regarding claim 10, as following the limitations analyzed in claim 6, Lomp further discloses that wherein the first and second groups of sample values comprising sample sequences are contiguous (column 27, lines 1 – 11).

Regarding claims 11, as following the limitations analyzed in claim 6, Lomp et al. further discloses (figure 4) that wherein processing the first group of coefficients in the code sequence with the first group of sample values (402) in the received values comprises determining a sum of products (408) of the first group of coefficients in the code sequence with the first group of sample values in the received sample (column 29, lines 27 – 38).

Regarding claims 12, as following the limitations analyzed in claim 6, Lomp et al. further discloses (figure 4) that wherein processing the second group of coefficients in the code sequence with the second group of sample values (403) in the received values comprises determining a sum of products (409) of the second group of coefficients in the code sequence with the second group of sample values in the received sample (column 29, lines 38 – 45).

Regarding claim 13, Lomp et al. further discloses (figure 4) that wherein determining correlation outputs for the plurality of sample sequences comprises taking a sum (410) of the first and second correlation values (column 29, lines 22 – 47).

Regarding claim 14, Lomp et al. discloses (figure 4):

Art Unit: 2631

- Organizing the code sequence, having a plurality of contiguous coefficients, into a plurality of contiguous code sequence groups (column 29, lines 22 – 47 and column 27, lines 1 – 34);
- Selecting a number of sample sequences to process in parallel where each of the sample sequence has contiguous sample values from received sample (this limitation is inherently taught because Lomp et al. has to select whether the group of $X(nT+T/2+\tau)$ to process in blocks 401, 404, 406, 408 or $x(nT+\tau)$ to process in blocks 403, 405, 407, 409);
- Organizing contiguous sample values from each of first set of sample sequences to process in parallel into a first set of contiguous sample sequence groups (column 29, lines 22 – 37);
- Processing (410) coefficients in each of the code sequence groups in parallel with corresponding sample values in corresponding sample sequence groups from the first set of sample sequences, where each of code sequence groups is processed during a different clock cycle (column 29, lines 22 – 47 and column 27, lines 1 – 34).

Regarding claim 15, as following the limitations analyzed in claim 14, Lomp et al. further discloses (figure 4);

- Organizing contiguous sample values from each of a second set of sample sequences to process in parallel into a second set of contiguous sample sequence groups (column 29, lines 22 – 47 and column 27, lines 1 – 34); and
- Processing (410) coefficients in each of the code sequence groups in parallel with corresponding sample values in corresponding sample sequence groups from the second set of sample sequences, where each of the code sequence groups is processed during a different clock cycle (column 29, lines 22 – 47 and column 27, lines 1 – 34).

Regarding claim 19, as following the limitations analyzed in claim 14, Lomp et al. further discloses (figure 4) wherein processing comprises determining a sum of the product of the coefficients (410) in each code sequence groups with each of the sample values in corresponding sample sequence from the first set of sample sequences (column 29, lines 22 – 47 and column 27, lines 1 – 34).

Regarding claim 23, as following the limitations analyzed in claim 22, the limitations are analyzed in the same manner set forth as the combination of claims 9 and 14.

Regarding claim 33, Lomp et al. discloses (figure 4):

- A plurality of code sequence registers (402,403) that store coefficients from a code sequence group, the plurality of code sequence registers (402, 403) storing coefficients from one code sequence group of a plurality of code sequence group at a time (column 29, lines 22 – 47 and column 27, lines 1 – 34);
- A plurality of sample registers (408, 409) that store sample values from a plurality of sample sequences that are processed in parallel (column 19, lines 15 – 22, column 29, lines 22 – 47 and column 27, lines 1 - 34);
- A processing unit (410) that processes coefficients in each of the plurality of code sequence groups in the plurality of code sequences registers in parallel with corresponding sample values in corresponding sample sequence groups from a first plurality of sample sequences in the plurality of sample registers, where each of code sequence groups is processed during a different clock cycle ((column 29, lines 22 – 47 and column 27, lines 1 – 34).

Regarding claims 38, as following the limitations analyzed in claim 33, the limitations are analyzed in the same manner set forth as claim 4.

Regarding claim 46, Lomp et al. discloses (figure 4):

- Means for storing coefficients (402, 403) from a code sequence group, the means for storing coefficients (402, 403) storing coefficients from one code sequence group of a plurality of code sequence group at a time (column 29, lines 22 – 47 and column 27, lines 1 – 34);
- Means for storing sample values (408, 409) from a plurality of sample sequences that are processed in parallel (column 19, lines 15 – 22, column 29, lines 22 – 47 and column 27, lines 1 - 34); and
- Means for processing coefficients (410) in each of the plurality of code sequence groups in the plurality of code sequences registers in parallel with corresponding

Art Unit: 2631

sample values in corresponding sample sequence groups from a first plurality of sample sequences in the plurality of sample registers, where each of code sequence groups is processed during a different clock cycle (column 29, lines 22 – 47 and column 27, lines 1 – 34).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14 **Claims 7, 8, and 20 – 22 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Lomp (US patent # 5,799,010).

Regarding claim 7, as following the limitations analyzed in claim 6, Lomp et al. differs from the instant claimed invention that it does not show the step of wherein the code sequence comprising L coefficients and the first and second groups of coefficients in the code sequence each comprising n coefficients.

However, one of ordinary skill in the art is able to give the code sequence any special value of coefficients.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Lomp as providing the requirements of the instant claimed inventions for convenience to determine the correlation values.

Art Unit: 2631

Regarding claim 8, as following the limitations analyzed in claim 7, Lomp et al. differs from the instant claimed invention that it does not show the step of wherein first and second groups of sample values in the received sample each comprising n sample values.

However, one of ordinary skill in the art is able to give the code sequence any special of sample values.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Lomp et al. as providing the requirements of the instant claimed inventions for convenience to determine the correlation values.

Regarding claims 20, as followed by the limitations analyzed in claim 14, Lomp further discloses that wherein the code sequence comprises a plurality of contiguous values (column 29, lines 27 – 33 and column 27, lines 17 - 19).

Regarding claim 21, as following the limitations analyzed in claim 20, the limitations are analyzed in the same manner set forth as claim 7.

Regarding claim 22, as following the limitations analyzed in claim 21, the limitations are analyzed in the same manner set forth as claim 8.

15. **Claims 16, 28, and 42 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Lomp (US patent # 5,799,010), and further in view of Okubo et al. (US patent # 6,729,298 B1).

Regarding claim 16, as following the limitations analyzed in claim 14, Lomp et al. further discloses (figure 4):

- Determining a correlation output for each of the sample sequences (column 29, lines 22 – 47 and column 27, lines 1 - 11).

Lomp et al differs from the instant claimed invention that it does not show determining a synchronizing point for the code sequence from the correlation output.

Art Unit: 2631

However, Okubo et al. discloses (figure 9) the step of determining a synchronizing point for the code sequence (36) from the correlation output (24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Lomp et al. and Okubo et al. as providing the requirements of the instant claimed inventions for estimating a code synchronization point (column 15, lines 3 and 4 of Okubo et al.).

Regarding claim 28, as following the limitations analyzed in claim 26, the limitations are analyzed in the same manner set forth as the combination of claim 16.

Regarding claim 42, as followed by the limitations analyzed in claim 41, the limitations are analyzed in the same manner set forth as claim 16.

Allowable Subject Matter

16. **Claims 26 and 39 would be allowable** if rewritten or amended to overcome the objection(s) set forth in this Office action.

17. **Claims 17, 18, 24, 25, 27 - 32, 34 - 37, 40 - 45 are objected** to as being dependent upon a rejected base claim, or to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, or to overcome the objection(s) set forth in this Office action, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung X. Nguyen whose telephone number is (571) 272-3010. The examiner can normally be reached on Monday through Friday from 8:30 AM to 17:30 PM.

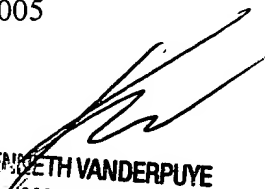
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Vanderpuye Kenneth N. can be reached on (571) 272-3078. The fax phone numbers for this group is (571) 273-3021.

Art Unit: 2631

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

DXN

August 24, 2005



KENNETH VANDERPUYE
PRIMARY EXAMINER